

# An Ornithological Survey of Dang Deukhuri Foothill Forests and West Rapti Wetlands IBA



A report submitted to  
Oriental Bird Club, UK



By  
Jyotendra Jyu Thakuri  
Bird Conservation Nepal  
2009



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**Cover page bird picture: Chestnut-headed Bee-eater *Merops leschenaulti***

**All Photographs by: Jyotendra Jyu Thakuri (except mentioned)**

**Cover page designed by: Mitra Pandey, BCN**

## Summary

Dang Deukhuri foothill Forest and West Rapti Wetland is an Important Bird Area, located in mid-western part of Nepal. Birdlife of this area was not known due to lack of proper study. Present study was carried out to find out the species richness, seasonal diversity and existing threats of bird. Mackinnon's species richness counting method was used as field method. Bird surveys were carried in four seasons autumn (19-29 October 2008), winter (15-21 January 2009), spring (18-24 March 2009) and summer (3-11 June 2009). Similarly, standard questionnaire survey and informal interview using open-ended questions was also carried.

Total of 246 bird species were recorded from 120 lists. Autumn has highest bird diversity with species richness 148 and winter with 146 bird species from each season. Similarly, 138 bird species from spring and 137 bird species from summer season were recorded. Thirty lists were prepared for each season. 27 species were recorded from autumn season only similarly 21 from winter, 14 spring and 19 from summer season. The highest numbers of birds were resident with 185 species, followed by winter visitor 50 species and summer visitor 11 bird species. Globally threatened birds like Egyptian Vulture *Neophron percnopterus*, White-rumped Vulture *Gyps bengalensis*, Slender-billed Vulture *Gyps tenuirostris*, Red-headed Vulture *Sacrogyaps calvus* and Greater Spotted Eagle *Aquila clanga* were some globally threatened birds and Grey-headed Fish Eagle *Ichthyophaga ichthyaetus* and Cinereous Vulture *Aegyptius monachus* were Globally Threatened, NT birds. A total of 20 White-rumped Vulture *Gyps bengalensis* nest were located. Likewise Red Junglefowl *Gallus gallus*, Abbott's Babbler *Malaconincla abbotti*, Great Slaty Woodpecker *Mulleripicus pulveripicus pulverulentus*, Black Stork *Ciconia nigra*, Long-billed Plover *Charadrius placidus* Spot-bellied Eagle Owl *Bubo nipalensis* and White-tailed Stonechat *Saxicola leucura* were nationally threatened birds recorded. Birds of this area are facing threats like habitat destruction, Diclofenac and pesticides poisoning, Forest fire and hunting and trapping.

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## Background

Nepal, a small mountainous country, is remarkable for its great beauty and visual variety. It is situated along the southern slope of Central and eastern Himalayas. It lies between the latitudes of 26° 20' and 30° 28' N and between the longitudes of 80° 15' E and 88° 10' E and covers a total area of 187141 km<sup>2</sup>.

Although Nepal is small country it has been blessed with diverse biodiversity. The great biodiversity of Nepalese fauna is revealed by birds. To date 864 species of birds have recorded (BCN 2009 and Giri & Choudhary 2009). Totals of 208 mammal species, 148 Herpetofauna, 185 fish, 641 butterfly, 144 spider species have been recorded in Nepal (Baral and Shah 2008, Shah and Tiwari 2004, Shrestha 1995, Prajapati *et.al.* 2000 and BPP 1995). This biodiversity is the reflection of Nepal's unique geographical position, altitudinal variation and climatic differences (Grimmett *et al.* 2000)

According to zoogeographical classification (Udvardy 1975) Nepal lies at the junction of two big biogeographic realms, Palaearctic to the north and Indo-Malayan or Oriental region to the south. The boundary between two regions is the tree-line at about 3000m (Corbet and Hill 1992). Faunal elements above this altitude have Palearctic affinities (BPP 1995). From south to north of the country there is an overall increase in elevation, within the distance of 180 km from south to north altitude ranges from a minimum of 60 m to a maximum of 8848m altitude. Elevation is the main factor that defines the boundaries of the 7 physiographic zones. Based on wide altitudinal variation, the climate is broadly classified into cold Arctic/Nival (above 3000 m), cold temperate (2000-3000 m), warm temperate (1500-2000 m), subtropical (1000-1500m) and tropical (below 1000m). Climatologically Nepal is divided into summer and winter. The country is divided into 7 physiographical regions which occur in the following order from south to north: Terai, Siwaliks, Mahabharat lekh, Midhills, Himalayas, Inner Himalayas and The Tibetan Marginal Mountain Range (Hagen 1998). Among 864 species of birds around 611 species breed here in Nepal. About 62 species are summer visitors or partial migrants and 150 species are winter migratory (Grimmett *et.al.* 2003). Spiny Babbler is the only endemic bird species recorded for Nepal.

33 species are considered globally threatened (BLI 2001, 2004, BLI 2009a and 2009b) and 133 species (15%) are identified as nationally threatened, furthermore 72 species are thought to be critically threatened or endangered (Baral & Inskipp 2004). 11 species are considered extinct (Inskipp & Inskipp 1991). 145 species are included in CITES (UNEP-WCMC 2007). The following 9 species are protected by National Parks and Wild Life Conservation Act 1973, Government of Nepal. White Stork *Ciconia ciconia*, Black Stork *Ciconia nigra*, Himalayan Monal *lophoborou impejanus*, Styr Tragopan *Tragopan satrya*, Cheer pheasant *Catreus wallichii*, Bengal florican *Houbaropsis bengalensis*, Lesser Florican

*Sypheotides indicia*, Sarus Crane *Grus antigone* and Great Hornbill *Uceros bicornis* (Baral & Inskipp 2004).

Nepal's major bird habitat consists of forest, wetland and grassland. Forest and bushes hold 77% of Nepal's breeding birds (Grimmett *et.al.* 2000). Among them 78 species (59%) of total threatened species depends on forest (Baral & inskipp 2004).

Avifaunal diversity decreases with increase in altitude (Inskipp1989, Inskipp and Inskipp 1991).The richest area for Nepalese birdlife lies in the tropical lowlands below 300m where more than 500 species have been recorded. In the sharp contrast, only about 80 species have been found above 4,270m in alpine zone (Inskipp& Inskipp 1991). In order to facilitate bird conservation and management BirdLife International has indentified 27 Important Bird Areas (IBA) and 3 potential IBAs for Nepal (Baral and Inskipp 2005). Dang Deukhuri Forest and west Rapti wetland is one of the unprotected IBAs of mid-west Nepal. Information on birdlife of the area is lacking due to the absence of proper surveys in the past. One notable observation was of a record of 51 nests of White-rumped Vulture *Gyps bengalensis* in 2003 (Baral and Coudhary 2003)

## **Objectives**

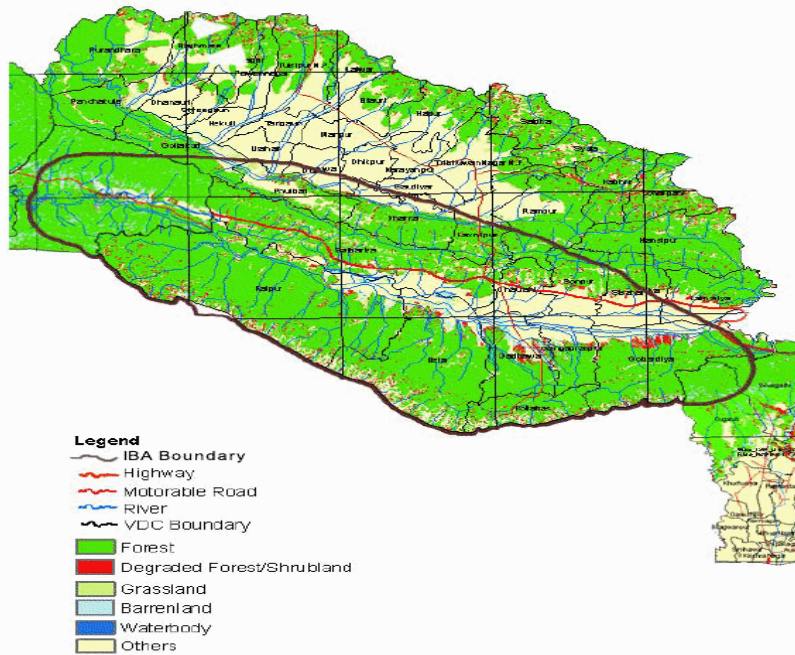
The main aim of this study was to obtain the avian diversity for the Dang Deukhuri Foothill Forest and west Rapti Wetland.

- To determine the avian diversity in study area
- To assess the richness of bird species in the area.
- To assess the existing threats facing avian fauna in the area

## **STUDY AREA**

The study area, Dang Deukhuri Foothill forest and West Rapti Wetland (28<sup>0</sup> 00'N 82<sup>0</sup> 25'E) lies in Dang District and also encompass part of Banke and Kapilvastu district. It covers an area of 150,000ha with an altitudinal range of 200 m to 900 m. It lies outside of Nepal's protected area system, but has been identified as one of Nepal's Important Bird Areas (IBA). (Baral and Inskipp 2005).It is intersected by East West Mahendra highway. The area is also a part of WWF's Terai Arc Landscape project.





Map: Dang Deukhuri Foothill Forest and West Rapti Wetland (WWF)

To the south, the study area adjoins Uttar Pradesh of India. The international border follows the southern edge of the outermost Siwalik foothills called the Dundwa Range. There is no Nepalese "outer Terai" here. Therefore Deukhuri contains Churia range of hills in north, Dundwa range of Siwalik in south and the inner Terai in mid. The area retains a significant portion of forests. Forest is managed by Department of Forest (DOF). A total of 108 Community forests are registered on District forest office in Deukhuri within Kapilvastu District DOF managing forest as National forest likewise in Banke district there both Community forest and National forest. The West Rapti River flows through the length of Deukhuri Valley, in the inner Tarai after emerging from a gorge through the Mahabharat at Bhalubang. There are many tributaries of the Rapti such as the Arjun Khola, Gurung Khola, Baura Khola, Subel Khola and Budi Khola which remain dry except monsoon season. The entire Deukhuri area is divided in to 10 VDC ie Bela Gobardiya, Sonpur, Chulahi, Gangaparspur Koilabas, Lalmatiya, Rajpur, Satbariya and Sisahania.

### Climate

Deukuri has a humid, subtropical climate which is dominated by monsoon. According to climatological data from the nearest station Ghorahi Dang, June receives average rainfall 289.4909mm, highest rainfall recorded up to 424.8909mm in July. The monsoon season remains till September with average 230.9273mm. Likewise November 4.472727mm and December 4.218182mm are the months receiving

lowest rainfall. The total mean annual precipitation was estimated to be about 1620.6mm from 1998 to 2008.

December and January are the coldest month with minimum temperature 5.5 °C and 6.5 °C, maximum temperature for these months are 20.5 °C and 22.5 °C. Temperature rises gradually after January. April, May, June and July are hottest months with maximum temperature 33.5 °C, 33.5 °C, 31.5 °C and 29.5 °C. Minimum Temperature for April, May, June and July is 17.5 °C, 20 °C, 23.6 °C, and 22.3 °C.

### **Biodiversity**

The principal vegetation of the area comprises tropical dry forest. Forests are mainly dominated Sal *Shorea robusta* forest in Valley. The associated species with Sal are Saaj *Amla Emblica officinalis*, Hade *Lagerstroemia parviflora*, Sisao, Simal Bel *Aegle marmelos*, Mauha and Vellar etc at Chhure range. Cutro *Berberis sp.* and Pahele *Coridalis chaerophylla* are some undergrowth scrub species. Khar *Typha angustifolia* and Kans grass *Saccharum spontaneum* are grass species located along the Rapti Bank.

This area remains unexplored for its biodiversity. *Slender-billed Vulture Gyps tenuirostris*, Cinerous Vulture *Aegyptius monachus*, Red-headed Vulture *Sacrogyaps calvus* Lesser Adjutant *Laeptoptilos javanicus* are some important avian fauna of that area (Baral and Inskipp 2005). This area is poor in mammalian diversity due to hunting (Baral and Inskipp 2005). However during this survey, Spotted Deer *Axis axis* (from Satbariya), Indian Flying Fox ( from Lamahi), Rhesus Monkey *Macaca mulata* (from Rajpur and Kusum), Terai Gray Langur *Semnopithecus hector* (from Kapilvastu), Indian Hare *Lepus nigricollis* (from Gadhwa and Arjun Khola) (Baral and Shah 2008) were recorded. Likewise Bangal Monitor *Varanus bengalensis*, Yellow Monitor *Varanus flavescens* and Banded Krait *Bungarus fasciatus* (Shah and Tiwari 2004) are some notable Herptofauna. Mahasheer *Tor tor* and Rohu *Labeo* sps.(Shrestha 1994) are some fishes of Rapti River.

### **Socio-economic aspect**

Total population of Dang Deukhuri is 87826 with 12865 household (Nepal Census Data 2001) Tharu is the indigenous cast of Deukhuri, but later people of other casts have been migrating here from other districts. The major subsistence activities of the local people are agriculture and animal husbandry. Rice *Oryza sativa*, Maize *Zea mays* are the major crops in the area, whereas mustard *Brassica campestris*, potato *Solanum tuberosum*, legumes are some minor crops. The main livestock are cattle, goat, buffalo, pig and poultry. In addition to farming, harvesting of forest products is the main source of income.

## METHODOLOGY

### Method

#### Mackinnon's listing method

Mackinnon's species richness counting method, Mackinnon and Phillips (1993) was used as described by Bibby *et al.* (2000) to estimate the species richness of the IBA.

#### *Species richness counting method will as follows:*

1. Each new encountered (seen and heard) species was recorded until a list of 20 will reach.
2. Then a new list (number 2) was started and another 20 species will recorded. Each list contained 20 different species, but subsequent lists could include species previously listed. During the survey much care was taken not to repeat same species in the same list, but to list the species in subsequent lists.
3. Then list number 3 was recorded.
4. A final running species total was obtained by extracting the number of species in list 2 that were not in list 1 and so on throughout all the recorded for that area.
5. Same process was repeated for four seasons and 30 lists were prepared for each season.

Mackinnon's listing method also provides rough estimation about abundance. This was calculated as,

$$Abundance = FrequencyofObservation$$

Grimmett *et al* (2000) and Grimmett *et al.* (1998) were used as field guides to identify birds. Full details of any globally threatened and near threatened species were recorded. Field visits were made in early morning up to noon. During third and fourth surveys similarly for first and second surveys it was done after 9 o'clock to mid day because this area remains foggy till noon during this autumn and winter season.

Motorbike was used to travel within the study area. Pukar Shah and Pushkar Shah helped as volunteer field assistant. Nikon D50 Camera was used for bird photography.

#### Questionnaire survey

Standard questionnaire survey (Annex II) was done to identify threats for birds' and condition of conservation awareness level. 30 Respondents from different backgrounds participated in the survey (III).

Similarly in some places informal interviews using open-ended questions were used to elicit local knowledge regarding the birds, threats etc. In this method properly unanswered questions from questionnaire survey were answered.

During field visits, existing threats were observed; the route usually avoided main trails and tracks in order to adequately assess degrees of human disturbance. While returning from daily survey usually the same trail was also avoided.

### Timetable

Year round survey was made from October 2008 to June 2009, so covering all four season as follows: autumn season (September October and November), winter season (December, January and February), spring (March, April and May) and summer (June, July and August).

The time table and surveyed areas was as follow.

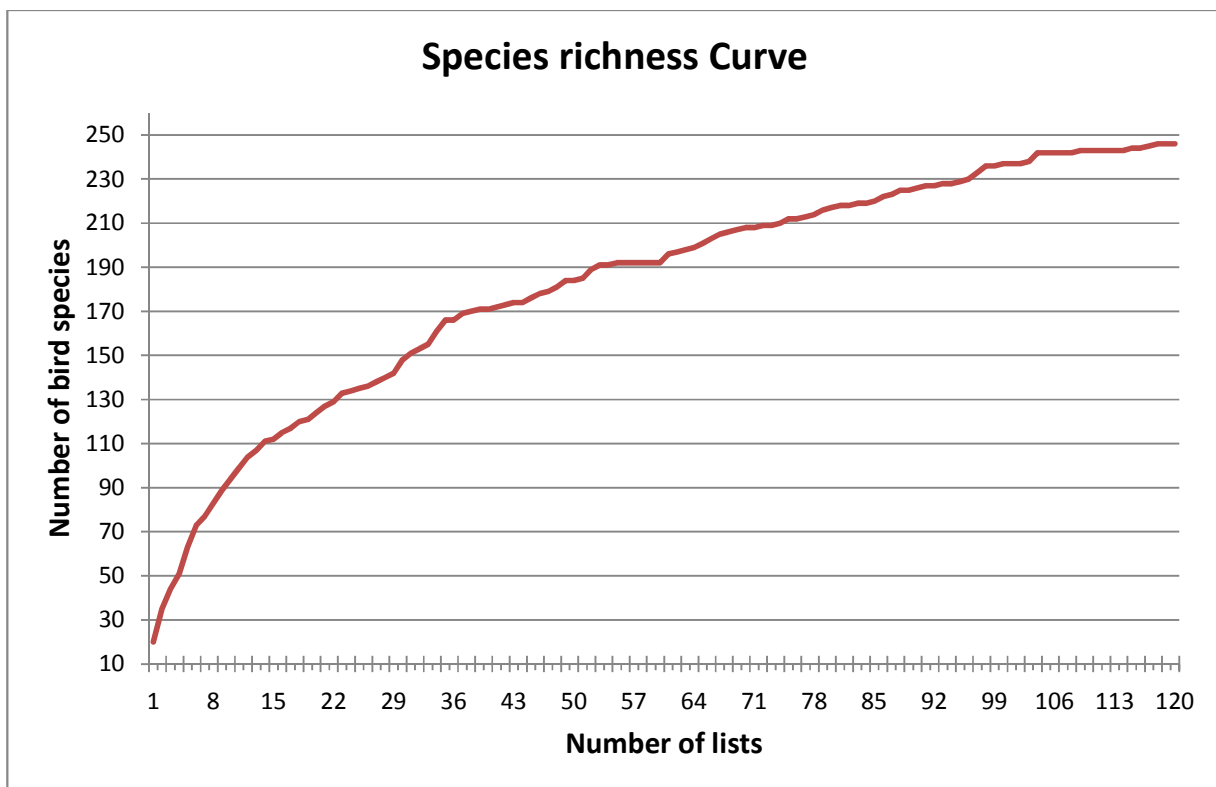
Survey	Month	Number of days	Surveyed area
I survey Autumn season	October, 19-29 2008	10	Bhalubang, Motipur , Minicapur, and Saantipur of Gadhwa, Lamahi of Chaulahi, Arjun Khola Satbariya and Chaulahi, Padhmini Khola , Nimbukhhuti Rapti of Manpur of Satbariya, Bhuka trisul dhari of Satbariya, Chaukhola of Amilya, Laxmi CF Banke, Rihar forest and Rapti of Satbariya and Jahheda tal and forest of Sonpur
II Survey Winter Season	January, 15-21 2009	7	Chirahi Naka of Kapilvastu, Devpur to Bhanpur of Rapti, Jahheda tal and forest of Sonpur, Hattipaila of Gadhwa, Kalipur of Bala, Laibaruya and Bankatti of Rajpur, Lalmatiya and Way to Bhaisai Naka Banke.
III survey Spring Season	March 18-24 2009	7	Kala Kate, budikhola , Malmala and Baura Khola of Gobardiya, Subel khola of Gangaparspur, Saantipur of Gadhwa, Gurung Khola, Rihar of Satbariya, Reu Khola, Laibaruya and Bankatti of Rajpur, AG land and Rapti of Kahiri and Dhikurpur of Chaulahi.
IV survey Summer Season	June, 3-11 2009	8	Ag land of Chulahi, Satbariya, Jakheda lake and forest, Amilya, way to Koilabas, Kala Kate, budikhola , Malmala and Baura Khola of Gobardiya, Lalmatiya, arjun Khola and way to Bhaisai Naka Banke.

## RESULTS

### Bird Diversity

A total of 246 bird species belonging to 15 Order and 47 families was recorded from October 2008 to June 2009. Overall 120 lists were taken. Globally Threatened birds like Grey-headed Fish Eagle *Ichthyophaga ichthyaetus*, Egyptian Vulture *Neophron percnopterus*, White-rumped Vulture *Gyps bengalensis*, Slender-billed Vulture *Gyps tenuirostris*, Cinereous Vulture *Aegypius monachus*, Red-headed Vulture *Sacrogyaps calvus* and Greater Spotted Eagle *Aquila clangawere* some interesting records.

Likewise Red Junglefowl *Gallus gallus*, Abbott's Babbler *Malaconincla abbotti*, Great Slaty Woodpecker *Mulleripicus pulverulentus*, Black Stork *Ciconia nigra*, Long-billed Plover *Charadrius placidus*, Spot-bellied Eagle Owl *Bubo nipalensis* and White-tailed Stonechat *Saxicola leucurawere* nationally threatened bird species recorded.



Black-hooded Oriole *Oriolus xanthornus* was highly abundant bird with highest frequency of observation. Other birds with high frequency of observation were Rufous Treepie *Dendrocitta vagabunda*, Great Tit *Parus major*, Himalayan Bulbul *Pycnonotus leucogenys*, Red-vented Bulbul

*Pyconotus cafer*, Common Tailorbird *Orthotomus sutorius*, Purple Sunbird *Nectarinia asiatica*, Jungle Babbler *Turdoides striatus* and Spangled Drongo *Dicrurus hottentottus*.

Great Cormorant *Phalacrocorax carbo*, Intermediate Egret *Mesophoyx intermedia*, Black Stork *Ciconia nigra*, Lesser Whistling Duck *Dendrocygna javanica*, Ruddy Shelduck *Tadorna frruginea*, Eurasian Wigeon *Anas Penelope*, Northern Pintail *Anas acuta*, Common Teal *Anas crecca*, Common Merganser *Mergus merganser* and Demoiselle Crane *Grus vigor* are some birds associated with wetland were recorded from the Rapti River.



Orange-headed Thrush *Zosterops citrine*

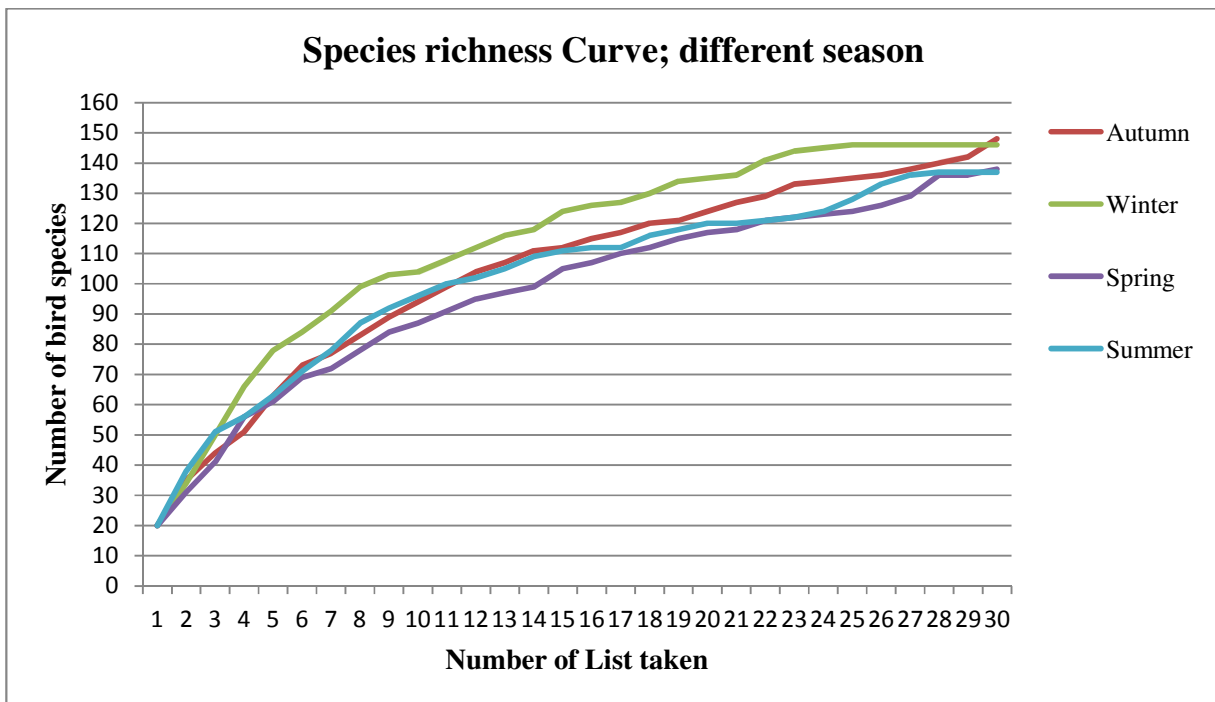


White-throated Fantail *Rhipidura albicollis*

### Seasonal bird diversity

The highest bird diversity was found in autumn when a total of 148 bird species was recorded. A similar number of 146 bird species was recorded in winter. Similarly 138 bird species were recorded in spring and 137 bird species were recorded in summer. 30 lists were prepared for each season. 27 species were recorded from autumn season only similarly 21 from winter, 14 spring and 19 from summer season.

During autumn season, Black-hooded Oriole *Oriolus xanthornus*, White-bellied Drongo *Dicrurus careulescens*, Great Tit *Parus major*, White Wagtail *Motacilla alba* and, Purple Sunbird *Nectarinia asiatica* were some recorded birds having highest frequency of observation.



Some winter migratory birds like Eurasian Wryneck *Jynx torquilla*, Cinereous Vulture *Aegypius monachus*, Eurasian Griffon *Gyps falvus*, Red-headed Vulture *Sacrogyaps calvus*, Steppe Eagle *Aquila nipalensis*, Wallcreeper *Tichodroma muraria*, Common Merganser *Mergus merganser* and Northern Pintail *Anas acuta* were recorded from winter season.

Some of the summer migratory birds were Blue-tailed Bee-eater *Merops philippinus*, Blue-breasted Bee-eater *Nyctyornis, athertoni*, Common Hawk Cuckoo *Hierococcyx varius*, Eurasian Cuckoo *Cuculus canorus*, White-throated Needletail *Hirundapus caudacutus*, Blue Rock Thrush *Monticola solitaries* and Common Rosefinch *Carpodacus erythrinus*.

Lesser Whistling Duck *Dendrocygna javanica*, Small Pratincole *Glareola lacteal*, Indian Pitta *Pitta brachyuran*, Little Heron *Butorides striatus* Cinnamon Bittern *laxobrychus cinnamomeus* etc. were observed only from summer season.

Highly abundant birds for summer season were Black Francolin *Francolinus francolinus*, Coppersmith Barbet *Megalaima haemacephala*, White-throated Kingfisher *Halcyon smyrnensis*, Eurasian Collard Dove *Streptopelia decaocto*, Spangled Drongo *Dicrurus hottentottus* and Common Iora *Aegithina tiphia*.

The highest numbers of birds were resident with 185 species, followed by winter visitor 50 species and summer visitor 11 bird species.

The breeding activity of Asian Paradise-flycatcher *Terpsiphone paradise*, Black-naped Monarch *Hypothymis azurea*, White-throated Fantail *Rhipidura aureola*, Purple Sunbird *Nectarinia asiatica*, Black Ibis *Pseudibis papillosa*, Woolly-necked Stork *Ciconia episcopus* and Red-whiskered Bulbul *Pycnonotus jacosus* was observed during Spring and summer season.



Asian Paradise-flycatcher *Terpsiphone paradisi*



Puff-throated Babbler *Pellorneum ruficeps*



Shikra *Accipiter badius*

## Habitat

**Wetland:** West Rapti River is a major wetland habit for birds. From Bhalubang to Rihar there is a wide sandy-stony river bank. Again such type of river bank can be observed down to Amilya.

In some places Forest was linked with River bank. The Arjun Khola, Gurung Khola, Baura Khola, Subel Khola, Budi Khola are some tributaries of Rapti River.





Rapti River and Forest near Amilya

The importance of these tributaries for birdlife was observed in the Churia range during spring and summer season. These rivers become dry coming up to Deukhuri Valley. Likewise Jakheda Lake in Sonpur VDC Is also a good habitat for bird but it is in degraded condition.

**Grassland:** Patchily distributed Khar *Typha angustifolia* dominant and mixture of Khar *Typha angustifolia* and Kans grass *Saccharum spontaneum* grassland along the bank of Rapti River is a major grassland habitat for grassland birds. Such grassland was observed in good condition at Chaulahi, Sonpur and Sisahania VDC. These Grasslands were found harvested completely before winter season. In other part this was in degraded condition.



Grassland at Sonpur during autumn season

**Forest:** Forest is an important habitat for Dang Deukhuri's birdlife. In valley *Shorea robustais* dominant. In hilly regions there is mixed dry tropical deciduous forest. From Lalmatiya to Chaulahi the forest is in degraded condition but in some part like Lalmatiya and around Jakheda Lake it is well managed and regenerated. Shisham *Dalbergia sissoo* was observed to be dominant. In most of the



Mixed forest of Churia (North face of Southern Deukhuri)



Dry deciduous forest at Arjun Khola (South face of Northern Deukhuri)

visited area big and old *Shorea robusta* trees were not seen. Most of the area had dry forest but west from Rihar the forest is wet and *Shorea robusta* is dominant forest. In Rajpur there is big Simal *Bombax ceiba* forest with no undergrowth. Saj *Terminalia alata* is the most associated tree in the valley with *Shorea robusta*. Forest of southern Deukhuri harbors mature forest than northern side.

### **Globally Threatened birds**

#### **Grey-headed Fish Eagle *Ichthyophaga ichthyaetus*(NT):**

One recorded perching on tree from Satbariya Rihar on June 9, 2009.

#### **Greater Spotted Eagle *Aquila clanga*(VU):**

One recorded resting on ground from Rapti bank of Chaulahi on 20 October 2008.

#### **Egyptian Vulture *Neophron percnopterus*:**

One soaring at Rapti Bank of Chaulahi on 20 October 2008.

Two soaring at Padhmini Khola Satbariya 25 October.

One soaring at Rapti Bank of Chaulahi January 16, 2009.

One perching on tree at Gangaparaspur on March 19 2009.

2 at Rihar June 4, 2009. 2 Amilya June 6, 2009. 2 at Gobardiya 7 June, 2009. 6 at Lalmatiya on June 10, 2009.

#### **White-rumped Vulture *Gyps bengalensis* (CR):**

2 soaring at Dhauba Satbariya on 25 October 2008.

6 soaring at Chirai Naka of Kapilvastu on January 15 2009.

3 nest at Bankatti, Rajpur (*Bombex sebia* tree) with 4 vultures and 1 nest with 1 Juvenile at Laibaruya, Rajpur (Saaj Tree).

4 feeding on carcass at Trisuldhari, Satbariya on January 20, 2009.

20 feeding on carcass at vulture restaurant Lalmatiya on January 21, 2009. 9 nest around Lalmatiya.

4 at Malmala gobardiya on March 18, 2009. 7 nests around Malmala of Gobardiya.

5 soaring at Gurung Khola on March 20, 2009. 12 at Lalmatiya on June 10, 2009.



White-rumped Vulture *Gyps*

**Cinereous Vulture *Aegypius monachus*(NT):**

Two feeding on carcass at Trisuldhari, Satbariya on January 20, 2009.

4 feeding on carcass at vulture restaurant Lalmatiya January 21, 2009.

**Slender-billed Vulture *Gyps tenuirostris* (CR):**

Two feeding on carcass at Trisuldhari, Satbariya on January 20, 2009.

3 feeding on carcass at vulture restaurant Lalmatiya January 21, 2009.



Slender-billed Vulture *Gyps*

**Red-headed Vulture *Sacrogyaps calvus*(CR):**

One soaring at Gadhwā on 21 October.

2 feeding on carcass at vulture restaurant Lalmatiya January 21, 2009.

### THREATS

1. Deforestation and encroachment: Forest of Dang Deukhuri has been heavily exploited during the recent period of political imbalance and insurgency. During the insurgency a big area of forest in Gangaparaspur was deforested by the security force to establish a camp. Ghandev Community Forest of Lalmatiya, Mahadev CF, Durga CF and santi CF of Gobardiya and Saljhundi CF of Gangaparaspur are some highly deforested community Forests. On June



Deforestation at Karri Community

2009 about 2000 villagers of Rajpur, Gobardiha, Bela and Koilabas VDCs were displaced from the Indo-Nepal border. They captured 470 hectares and stayed in the Kari community forest Satbariya-2 adjoining the East-West Highway in Dang district. Deforestation was haphazard in many places. Heavy Timber collection was also observed in many areas which was continuing throughout the seasons.

2. Hunting and trapping: Both questionnaire and informal survey respondents accept that hunting and trapping persist. During general survey herders and Majhi were found with catapults to hunt forest and wetland birds. Nest picking of birds like Peacock was recorded rearing with domestic chickens and a Brown Fish Owl was found trapped for sale. A hotel owner at Rihar claimed that snaring of Kalij Pheasant *Lophura leucomelanos* and Red Jungle fowl *Gallus gallus* is common practice, according to him 1 kg of these birds costs Rs. 150. Hearing gunshot was common at Gadhwa and Rihar. At Khutti, Rajpur, people accept that the children use to take vulture chicks from nest just for fun. Low frequency of observation of urban birds and game birds implies that there is serious hunting problem. Interestingly only one call of Indian Peafowl *Pavo cristatus* was heard from Budikhola Gobardiya when more were expected considering the extent of habitat.



3. Forest Fire: Dang Deukhuri forest is characteristic tropical dry deciduous forest, and is susceptible to forest fire. This time is the breeding season of birds.

Forest fire at Gobardiya

Mainly ground nesting birds like babblers face serious threats for successful breeding. During fourth survey in June 7, forest fires were observed from 12 places and forest fire was observed for all survey days.

4. Diclofenac and pesticides poisoning: During informal interview with avetinary technician it was found; they still use diclofenac for animal treatment. Similarly pesticides like Thiodon, Nuvan, Doom, Butachlorol, Matacid and Cypermethane 10 % are some commonly used by farmers. Birds are susceptible to insecticide damage (Baral, 2000). Ingesting pesticides directly or indirectly by eating pesticide-contaminated grains, fruits, worms and insects may adversely affect them. Similarly some people are committed to using pesticides for fishing in the Rapti River during the winter season. They also said that during this event many wading birds also die. Finding two dead White-rumped Vultures below Saj *Terminalia alata* tree implies that there is still use of diclofenac, according one Community Forest user group member there was a nest till last year.

5. Level of knowledge: Formal questionnaire survey and informal interview implies that; peoples of Deukhuri have very little knowledge about bird and their diversity. In some areas bird survey was a new and amazing topic for them to do research work. They have knowledge only about vulture species.

6. Overfishing: People of different age and sex were found involved in fishing in Rapti River in winter season while the water level was very low.
7. Cattle grazing: Although all most of the forest was managed as community forest cattle grazing was not stopped. The number of cattle grazing in forest at time varied from a few to as many as 100. Good bird diversity and population was found in ungrazed forest of Lalmatiya, saantipur and Laxmi CF of Banke. Grazing was also found associated with hunting and trapping.
8. Disturbances: The negative impact of disturbance was observed for aquatic birds at Rapti River. During the winter season most parts of the Rapti were covered by cattle and men. Until 9-10 am the river was covered with dense fog but before the clearance of fog there used to be cattle before me during my survey work. So birds were found spending their time flying here and there. Further vehicles like tractors used to collect sand and stone from the river. Kapilvastu has the largest sand mine in the study area.

## **CONCLUSION**

A total of 246 bird species belonging to 15 order and 17 Families was recorded from the year round survey. Among these birds 7 species are found globally threatened and another 7 species nationally threatened. 148 species were recorded from autumn and 146 bird species from winter season. Similarly 138 bird species from spring and 137 species were recorded from summer season. 186 were resident, 11 summer and 49 were winter migratory bird species.

Vulture breeding colonies were recorded from 3 places i.e. Lalmatiya, Gobardiya and Rajpur VDC with total of 20 nests.

The birdlife of Dand Deukhuri Foothill Forest facing many threats including hunting and trapping, diclofenac poisoning, forest fire and human disturbances.

## **DISCUSSION**

Important Bird Area (IBA) is an area recognized as being globally important habitat for the conservation of bird populations. The program was developed by BirdLife International. One of the reasons that Dang Deukhuri Foothill Forest and West Rapti wetland was included in IBA was because of the number of White-rumped Vulture nest (Baral and Inskipp 2005). Any survey regarding biodiversity did not happen

in the past due to political crisis in Nepal. But (Baral and Inskipp 2005) has pointed out that this area could support many bird species.

The recording of 246 species of birds is considered to be high. Some bird species like Crested Goshawk *Accipiter trivirgatus*, Bonelli's Eagle *Hieraetus fasciatus*, Banded Bay Cuckoo *Cacomantis sonneratii*, Pale-chinned Flycatcher *Cyornis poliogenys* and Vernal Hanging Parrot *Loriculus vernalis* that were recorded previously by Cox(2008) were not found.

Recorded bird diversity from autumn and winter is higher than spring and summer season; this may be due to augmentation of resident bird by visitor birds which breed in higher altitude. But the number of days spent for different season is different. The species richness curve is increasing even toward the end of survey this shows that more new species could be found with more survey if the existing threats if there will be no more existing threats.

The numbers of White-rumped Vulture *Gyps bengalensis's* nest observed were down to 20 from 51 (Baral and Choudhary 2003). Among these 20 nests 9 from Lalmatiya were located before this survey; the remaining nests were located during this survey. The finding of 2 dead White-rumped Vultures at Satbariya forest implies there is still using practice of diclofenac, although the government has banned its use from Nepal. Vulture conservation has been initiated by BCN and WWF by setting up a vulture restaurant at Lalmatiya.

The Rapti River provides good home for migratory birds like Demoiselle Crane *Grus vigro*, Northern Pintail *Anas acuta*, Common Merganser *Mergus merganser* etc. but in general observed population of river birds was lower than expected.

Interestingly very common birds of other areas of Nepal like Black Kite *Milvus migrans*, Common Myna *Acridotheres tristis*, Cattle Egret *Bubulcus ibis*, Indian Pond Heron *Ardeola grayii*, House Sparrow *Passer domesticus*, Eurasian Tree Sparrow *Passer montanus* etc. were recorded with low frequency of observation and population. In my opinion existing threats like hunting and use of pesticides' may be responsible for that scenario.

The wide stony river banks of the Rapti River and Arjun Khola are potential habitat for Ibisbill *Ibidorhyncha struthersii* (Grimmett *et al* 2000 and Baral and Inskipp 2004) but it was not listed in my checklist, possibly due to human disturbances. Lesser Adjutant *Leptoptilos javanicus*, a previously uncommon resident here (Baral and inskipp 2005) is possibly extinct in this area; some respondents agreed with that fact.

The negative impact of media coverage had lead to the capture of a Brown Fish Owl *Ketupa zeylonesis* near Amilya. According to field assistant Pushkar Shah the keeper had read about the trade of owl in news paper so he was keeping it. Although the bird diversity is high there are number of serious threats for the birdlife in the IBA. To assess the threats direct observation, standard questionnaire survey and open-ended interviews were used. The open ended interview was found useful because the respondents were hesitating to write actual facts they knew.

### **RECOMMENDATIONS**

- Further detail study of vulture breeding colony should be carried out. Ornithological survey along the Dundua range (Southernmost of Deukhuri) is recommended.
- Most of the people of Deukhuri are unaware about the importance of birds and biodiversity. Conservation awareness programme should run among the Community Forest (CF) users' students and other general people.
- The Churia range of this IBA still contains good area of remaining forest but is under threat of deforestation so rules and regulations of Community Forest management should be followed should be implemented strongly.
- This area should be declared as diclofenac free zone.
- Community forest management should be bird friendly.

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## Annex I: Bird Checklist of Dang Deukhuri Foothill Forest

Order/Family/English Name/Scientific Name	Frequency of observation				Migratory Status
	AU	W	SP	SU	
<b>GALLIFORMES</b>					
<b>PHASINIDAE</b>					
Black Francolin <i>Francolinus francolinus</i>		1		13	R
Grey Francolin <i>Francolinus pondicerianus</i>	1				R
Common Quil <i>Coturnix coturnix</i>			1		R
Red Junglefowl <i>Gallus gallus</i> <sup>v</sup>	2	3	3	4	R
Kalij Pheasant <i>Lophura leucomelanos</i>	2				R
Indian Peafowl <i>Pavo cristatus</i>			3		R
<b>ANSERIFORMES</b>					
<b>DENDROCYGNIDAE</b>					
Lesser Whistling Duck <i>Dendrocygna javanica</i>				1	R
<b>Anatidae</b>					
Ruddy Shelduck <i>Tadorna frruginea</i>	5	6			W
Eurasian Wigeon <i>Anas penelope</i>		1			W
Northern Pintail <i>Anas acuta</i>					W
Common Teal <i>Anas crecca</i>		2			W
Common Merganser <i>Mergus merganser</i>		2			W
<b>TURNICIFORMES</b>					
<b>Turnicidae</b>					
Barred Buttonquail <i>Turnix suscitator</i>		1			W
<b>PICIFORMES</b>					
<b>Picidae</b>					
Eurasian Wryneck <i>Jynx torquilla</i>		1			W
Brown-capped Pigmy Woodpecker <i>Dendrocopos nanus</i>	1	2		3	R
Grey-capped Pigmy Woodpecker <i>Dendrocopus canicapillus</i>	7	9	6	5	R
Fulvous-breasted Woodpecker <i>Dendrocopos macei</i>	2	1	2		R
Yellow-crowned Woodpecker <i>Dendrocopos mahrattenis</i>	2	1	1		R
Rufous Woodpecker <i>Celeus brachyurus</i>	2				R
Greater Yellownape <i>Picus flavinucha</i>		2	1		R
Grey-headed Woodpecker <i>Picus canus</i>			3	3	R
Himalayan Flameback <i>Dinopium shorii</i>	7	6	4	7	R
Black-rumped Flameback <i>Dinopium benghalense</i>	4		1		R
Greater Flameback <i>Chrysocolaptes lucidus</i>	1		2	3	R
White-naped Woodpecker <i>Chrysocolaptes festivus</i>			1		R
Great Slaty Woodpecker <i>Mulleripicus pulveripicus pulverulentus</i> <sup>v</sup>				1	R
<b>Megalaimidae</b>					
Brown-headed Barbet <i>Megalaima zeylanica</i>		1	3		R
Lineated Barbet <i>Megalaima lineata</i>	2	6	17	9	R
Coppersmith Barbet <i>Megalaima haemacephala</i>	1	1	11	17	R

<b>BUCEROTIFORMES</b>					
<b>Bucerotidea</b>					
Indian Grey-Hornbill <i>Ocyceros birostris</i>	5	5	2	4	R
Oriental Pied-Hornbill <i>Anthracoceros albirostris</i>	4	4	1	2	R
<b>UPUPIFORMES</b>					
<b>Upupidea</b>					
Common Hoopoe <i>Upupa epops</i>	3	2			W
<b>CORACIFORMES</b>					
<b>Coraciidae</b>					
Indian Roller <i>Coracias benghalensis</i>	4	7	10	6	R
<b>Alcedinidae</b>					
Common Kingfisher <i>Alcedo atthis</i>	1		1	1	R
<b>Dacelonidea</b>					
White-throated Kingfisher <i>Halcyon smyrnensis</i>	3	4	12	14	R
<b>Cerylidae</b>					
Pied Kingfisher <i>Ceryle rudis</i>	2		2	2	R
<b>Meropidae</b>					
Blue-bearded Bee-eater <i>Nyctyornis athertoni</i>			1		R
Green Bee-eater <i>Merops orientalis</i>	1	2	9	4	R
Blue-tailed Bee-eater <i>Merops philippinus</i>			6	5	S
Chestnut-headed Bee-eater <i>Merops leschenaulti</i>			16	8	S
<b>CUCULIFORMES</b>					
<b>Cuculidae</b>					
Pied Cuckoo <i>Clamator jacobinus</i>				1	S
Common Hawk Cuckoo <i>Hierococcyx varius</i>			2	7	R
Indian Cuckoo <i>Cuculus micropterus</i>				4	S
Eurasian Cuckoo <i>Cuculus canorus</i>			2	1	S
Asian Koel <i>Eudynamis scolopacea</i>			1	1	R
Green-billed Malkoha <i>Phaenicophaeus tristis</i>	1	1	2		R
Sirkeer Malkoha <i>Phaenicophaeus leschenaulti</i>				2	R
<b>Centropodidae</b>					
Greater Coucal <i>Centropus sinensis</i>	1	2	5	9	R
Lesser Coucal <i>Centropus bengalensis</i>	1				R
<b>PSITTACIFORMES</b>					
<b>Psittacidae</b>					
Alexandrine Parakeet <i>Psittacula eupatria</i>	7	8	3	8	R
Rose-ringed Parakeet <i>Psittacula krameri</i>	2	1		3	R
Slaty-headed Parakeet <i>Psittacula himalayana</i>	2	11	13	7	R
Plum-headed Parakeet <i>Psittacula cyanocephala</i>	9	5	9	5	R
<b>APODIFORMES</b>					
<b>Apodidae</b>					
White-throated Needletail <i>Hirundapus caudacutus</i>			2		R
Alpine Swift <i>Tachymarptis melba</i>		1	3	5	R
<b>Hemiprocnidae</b>					
Crested Treeswift <i>Hemiprocne coronata</i>			2	3	R
<b>STRIGIFORMES</b>					
<b>Strigidae</b>					
Collared Scops Owl <i>Otus bakkamoena</i>	1				R

Spot-bellied Eagle Owl <i>Bubo nipalensis</i> <sup>∨</sup>		1			R
Brown Fish Owl <i>Ketupa zeylonensis</i>				1	R
Collared Owlet <i>Glaucidium brodiei</i>	2	2			R
Asian Barred Owlet <i>Glaucidium cuculoides</i>	2	4	7	2	R
Jungle Owlet <i>Glaucidium radiatum</i>	1	3	2	3	R
Spotted Owlet <i>Athene Brama</i>		3			R
Brown Hawk-Owl <i>Ninox scutulata</i>	1		2		R
<b>Caprimulgidae</b>					
Indian Nightjar <i>Caprimulgus asiaticus</i>			2		R
<b>COLUMBIFORMES</b>					
<b>Columbidae</b>					
Rock Pigeon <i>Columba livia</i>			2		R
Oriental Turtle Dove <i>Streptopelia orientalis</i>	9	9	6	4	R
Spotted Dove <i>Streptopelia chinensis</i>			12	7	R
Red Collared Dove <i>Streptopelia tranquebaria</i>				2	R
Eurasian Collard Dove <i>Streptopelia decaocto</i>	8	8	5	11	R
Emerald Dove <i>Chalcophaps indica</i>	1		1	2	R
Yellow-footed Green Pigeon <i>Treron phoenicoptera</i>			1		R
<b>GRUIFORMES</b>					
<b>Guridae</b>					
Demoiselle Crane <i>Grus vigor</i>	2				W
<b>Rallidae</b>					
White-breasted Waterhen <i>Amaurornis phoenicurus</i>	3	1		1	R
Common Moorhen <i>Gallinula chloropus</i>	1	1			R
Common Coot <i>Fulica atra</i>	1	1			W
<b>CICONIFORMES</b>					
<b>Scolopacidae</b>					
Common Redshank <i>Tringa tetanus</i>		1			W
Common Greenshank <i>Tringa nebularia</i>	1	3		1	W
Green Sandpiper <i>Tringa ochropus</i>	1	4		1	W
Common Sandpiper <i>Actitis hypoleucos</i>	5	2		1	W
<b>Burhinidae</b>					
Eurasian Thick-knee <i>Burhinus oedicnemus</i>		1			R
<b>Charadriidea</b>					
Long-billed Plover <i>Charadrius placidus</i> <sup>∨</sup>	1				W
Little Ringed Plover <i>Charadrius dubius</i>	3				W
River Lapwing <i>Vanellus duvaucelii</i>		3		2	R
Red-wattled Lapwing <i>Vanellus indicus</i>	2		4	8	R
<b>Glareolidae</b>					
Small Pratincole <i>Glareola lacteal</i>				2	R
<b>Accipitridae</b>					
Black Baza <i>Aviceda leuphotes</i>			1	1	S
Oriental Honey Buzzard <i>Pernis ptilorrhyncus</i>					R
Black Kite <i>Milvus migrans</i>	1	2	1	1	R
Grey-headed Fish Eagle <i>Ichthyophaga ichthyaetus</i> **				1	R
Egyptian vulture <i>Neophron percnopterus</i> *	3	1	1	5	R
White-rumped vulture <i>Gyps bengalensis</i> *	2	4	3	2	R
Slender-billed Vulture <i>Gyps tenuirostris</i> *		2			R

Himalayan Griffon <i>Gyps Himalayensis</i>	1	6	3		W
Eurasian Griffon <i>Gyps falvus</i>		2			W
Cinereous Vulture <i>Aegyptius monachus</i> **		2			W
Red-headed Vulture <i>Sacrogyps calvus</i> *	1	1			R
Crested Serpent Eagle <i>Spilornis cheela</i>		4	5		R
Eurasian Marsh Harrier <i>Circus aeroginusus</i>	2				W
Hen Harrier <i>Circus cyaneus</i>	1				W
Pied Harrier <i>Circus melanoleucos</i>	1	1			W
Shikra <i>Accipiter badius</i>			4	5	R
Eurasian Sparrowhawk <i>Accipiter nisus</i>	1		2	1	R
Common Buzzard <i>Buteo buteo</i>	1	1	1		W
Long-legged Buzzard <i>Buteo rufinus</i>	1				W
Greater Spotted Eagle <i>Aquila clanga</i> *	1				R
Steppe Eagle <i>Aquila nipalensis</i>		2			W
Mountain Hawk Eagle <i>Spizaetus nipalensis</i>	1				R
<b>Falconidae</b>					
Common Kestrel <i>Falco tinnunculus</i>	5	3	3	1	R
Peregrine Falcon <i>Falco peregrines</i>		1			R
<b>Phalacrocoracidae</b>					
Little Cormorant <i>Phalacrocorax niger</i>	6				R
Great Cormorant <i>Phalacrocorax carbo</i>	1				W
<b>Ardeidae</b>					
Grey Heron <i>Ardea cinerea</i>	1			1	R
Purple Heron <i>Ardea purpurea</i>		2			R
Great Egret <i>Casmerodius albus</i>	2	2			R
Intermediate Egret <i>Mesophoyx intermedia</i>	1				R
Cattle Egret <i>Bubulcus ibis</i>			2	3	R
Indian Pond Heron <i>Ardeola grayii</i>	1	3		2	R
Little Heron <i>Butorides striatus</i>				1	R
Cinnamon Bittern <i>laxobrychus cinnamomeus</i>				1	S
<b>Threskiornithidae</b>					
Black Ibis <i>Pseudibis papillosa</i>	2		3	1	R
<b>Ciconiidae</b>					
Black Stork <i>Ciconia nigra</i> <sup>v</sup>	2				W
Woolly-necked Stork <i>Ciconia episcopus</i>	5		2		R
<b>PASSERIFORMES</b>					
<b>Pittidea</b>					
Indian Pitta <i>Pitta brachyuran</i>				5	S
<b>Irenidae</b>					
Golden-fronted Leafbird <i>Chloropsis aurifrons</i>	5	9	4	4	R
<b>Laniidae</b>					
Bay-backed Shrike <i>Lanius vittatus</i>	1	2		1	R
Long-tailed Shrike <i>Lanius schach</i>	4	4		4	R
Grey-backed Shrike <i>Lanius tephronotus</i>					R
Brown Shrike <i>Lanius cristatus</i>		1			R
<b>Corvidae</b>					
Red-billed Blue Magpie <i>Urocissa erythrorhyncha</i>	5	3	9	4	R
Rufous Treepie <i>Dendrocitta vagabunda</i>	17	13	12	13	R

House Crow <i>Corvus splendens</i>	2	4	3	1	R
Large-billed Crow <i>Corvus macrorhynchos</i>	9	1	4	8	R
Black-hooded Oriole <i>Oriolus xanthornus</i>	22	15	14	11	R
Eurasian Golden Oriole <i>Oriolus oriolus</i>	2		2	4	S
Large Cuckooshrike <i>Coracina macei</i>	18	7	9	4	R
Black-winged Cuckooshrike <i>Coracina melaschistos</i>	1			1	R
Small Minivet <i>Pericrocotus cinnamomeus</i>	2	2		3	R
Grey-chinned Minivet <i>Pericrocotus solaris</i>	1				R
Long-tailed Minivet <i>Pericrocotus ethologus</i>	6	5			R
Scarlet Minivet <i>Pericrocotus flammeus</i>	1		1	4	R
Bar-winged Flycatcher-shrike <i>Hemipus picatus</i>				2	R
White-browed Fantail <i>Rhipidura aureola</i>	2	2			R
White-throated Fantail <i>Rhipidura aureola</i>	1	3		1	R
Black Drongo <i>Dicrurus macrocercus</i>	1	4	3	9	R
White-bellied Drongo <i>Dicrurus careulescens</i>	20	9	7	11	R
Crow-billed Drongo <i>Dicrurus annectans</i>				7	S
Lesser Racket-tailed Drongo <i>Dicrurus remifer</i>	1				R
Spangled Drongo <i>Dicrurus hottentottus</i>	5	6	6	13	R
Greater Racket-tailed Drongo <i>Dicrurus paradiseus</i>	6	5	12	5	R
Black-naped Monarch <i>Hypothymis azurea</i>			1	2	R
Asian Paradise Flycatcher <i>Terpsiphone paradisi</i>			8	7	S
Common Iora <i>Aegithina tiphia</i>	1	4	3	12	R
Large Woodshrike <i>Tephrodornis gularis</i>	3	2	1	7	R
Common Woodshrike <i>Tephrodornis pondicerianus</i>	4	2		6	R
<b>Muscicapidae</b>					
Blue Rock Thrush <i>Monticola solitarius</i>			1		R
Blue Whistling Thrush <i>Myophonus Caeruleus</i>	3	2	3	2	R
Orange-headed Thrush <i>Zoothera citrina</i>	2		3		R
Scaly Thrush <i>Zoothera dauma</i>	2				W
Tickell's Thrush <i>Turdus unicolor</i>	1	1	1		W
Red-throated Flycatcher <i>Ficedula parva</i>	11	7	6		W
Slaty-blue Flycatcher <i>ficedula tricolor</i>			1		R
Blue-throated Flycatcher <i>Cyornis rubeculoides</i>			8		R
Tickell's Blue Flycatcher <i>Cyornis Tickellidae</i>	6	5	5	5	R
Grey-headed Canary Flycatcher <i>Culicicapa ceylonensis</i>	8	5			W
Siberian Rubythroat <i>Luscinia calliope</i>			1		W
Bluethroat <i>Luscinia avecica</i>			1		W
Oriental Magpie Robin <i>Copsychus saularis</i>	5			5	R
White-rumped Shama <i>Copsychus malabaricus</i>	5	3	5	7	R
Indian Robin <i>Saxicoloides fulicata</i>	4	2	2	5	R
Black Redstart <i>Phoenicurus ochruros</i>	3	1	11		W
Hodgson's Redstart <i>Phoenicurus hodgsoni</i>	3	4	2		W
White-capped Water Redstart <i>Chaimarrornis leucocephalus</i>		1			W
Black-backed Forktail <i>Enicurus immaculatus</i>	1		1	1	R
Common Stonechat <i>Saxicola torquata</i>	3	3	1		R
White-tailed Stonechat <i>Saxicola leucura</i> <sup>N</sup>	2	1			R
Pied Bushchat <i>Saxicola caprata</i>	3	3	5	1	R

Grey Bushchat <i>Saxicola ferrea</i>	10	1			R
<b>Sturnidae</b>					
Chestnut-tailed Starling <i>Sturnus malabaricus</i>		1	4	6	R
Brahminy Starling <i>Sturnus pagodarum</i>				4	R
Common Myna <i>Acridotheres tristis</i>	4	4	10	7	R
Jungle Myna <i>Acridotheres fuscus</i>	1				R
<b>Sittidae</b>					
Chestnut-bellied Nuthatch <i>Sitta castanea</i>	11	7	4	5	R
Velvet-fronted Nuthatch <i>Sitta frontalis</i>		2	1		R
Wallcreeper <i>Tichodroma muraria</i>		2			W
<b>Paridae</b>					
Great Tit <i>Parus major</i>	20	19	16	10	R
<b>Hirundinidae</b>					
Plain Martin <i>Riparia paludicola</i>	3	2	3	2	R
Barn Swallow <i>Hirundo rustica</i>	7	2	5	3	R
Red-rumped Swallow <i>Hirundo daurica</i>	1			1	R
Nepal House Martin <i>Delichon nipalensis</i>	3				R
<b>Pycnonotidae</b>					
Black-crested Bulbul <i>Pyconotus melanicterus</i>	4	7	7	7	R
Red-whiskered Bulbul <i>Pycnonotus jacosus</i>	3	4	2	4	R
Himalayan Bulbul <i>Pycnonotus leucogenys</i>	10	5	10	11	R
Red-vented Bulbul <i>Pyconotus cafer</i>	12	3	8	10	R
Black Bulbul <i>Hypsipetes leucocapalus</i>			1		R
<b>Cisticolidae</b>					
Bright-capped Cisticola <i>Cisticola exilis</i>	1				R
Zitting Cisticola <i>Cisticola juncidis</i>	2	2		3	R
Sriated Prinia <i>Prinia criniger</i>			1	4	R
Grey-breasted Prinia <i>Prinia Hodgsoni</i>			8	7	R
Jungle Prinia <i>Prinia sylvatica</i>	1			5	R
Ashy Prinia <i>Prinia socialis</i>		4	4	3	R
Plain Prinia <i>Prinia inornata</i>	9	5	6	3	R
<b>Zosteropidae</b>					
Oriental White-eye <i>Zosterops palpebrosus</i>	8	7	8	7	R
<b>Sylviidae</b>					
Blyth's Reed Warbler <i>Acrocephalus Dumetorum</i>		1	2		R
Booted Warbler <i>Hippolais caligata</i>			3		W
Common Tailorbird <i>Orthotomus sutorius</i>	16	11	11	14	R
Common Chiffchaff <i>Phylloscopus collybita</i>		4	4		R
Dusky Warbler <i>Phylloscopus fuscatus</i>		1			W
Tickell's Leaf Warbler <i>Phylloscopus affinis</i>	4		2		W
Hume's Warbler <i>Phylloscopus humei</i>	13	2	4	1	W
Greenish Warbler <i>Phylloscopus trochiloides</i>		2			W
Blyth's Leaf Warbler <i>Phylloscopus reguloides</i>		3	2		W
Grey-hooded Warbler <i>Seicercus xanthoschistos</i>		2			W
Abbott's Babbler <i>Malaconincla abbotti</i> <sup>N</sup>	1				R
Puff-throated Babbler <i>Pellorneum ruficeps</i>		1	2	2	R
Rusty-cheeked Scimitar Babbler <i>Pomatorhinus erythrogenys</i>				2	R

Black-chinned Babbler <i>Stachyris pyrrhops</i>		1		4	R
Striped Tit Babbler <i>Macronous gularis</i>				1	R
Large Grey Babbler <i>Turdoides malcolmi</i>			4	3	R
Jungle Babbler <i>Turdoides striatus</i>	9	6	7	7	R
<b>Alaudidae</b>					
Ashy-crowned Sparrow Lark <i>Eremopterix grisea</i>	1		1	3	R
Oriental Sky Lark <i>Alauda gulgula</i>	4	2	2		R
Sand Lark <i>Calandrella raytal</i>	3				R
Crested Lark <i>Galerida cristata</i>		1	1	2	R
<b>Nectariniidae</b>					
Thick-billed Flowerpecker <i>Dicaeum agile</i>				3	R
Pale-billed flowerpecker <i>Dicaeum erythrorhynchus</i>			2		R
Fire-breasted Flowerpecker <i>Dicaeum ignipectus</i>	2				R
Purple Sunbird <i>Nectarinia asiatica</i>	15	8	16	12	R
Crimson Sunbird <i>Aethopyga siparaja</i>		7	2	6	R
<b>Passeridae</b>					
House Sparrow <i>Passer domesticus</i>	1	6	2	2	R
Eurasian Tree Sparrow <i>Passer montanus</i>			1	2	R
Yellow-throated Sparrow <i>Ptornia xanthocollis</i>			13	2	R
White Wagtail <i>Motacilla alba</i>	15	7	2		R
White-browed wagtail <i>Motacilla maderaspatensis</i>				5	R
Grey Wagtail <i>Motacilla cinerea</i>	6	2	4		W
Richard's Pipit <i>Anthus richardi</i>	2	5	4	1	R
Paddyfield Pipit <i>Anthus rufulus</i>			2	3	R
Tree Pipit <i>Anthus trivialis</i>		1	2		W
Olive-backed Pipit <i>Anthus hodgsoni</i>	12	5	2		W
Rosy Pipit <i>Anthus roseatus</i>		2			W
Baya Weaver <i>Ploceus philippinus</i>	1				R
Scaly-breasted Munia <i>Lonchura punctulata</i>	1			1	R
Black-headed Munia <i>Lonchura malacca</i>	3				R
<b>Frangillidae</b>					
Common Rosefinch <i>Carpodacus erythrinus</i>			2		W
Crested Bunting <i>Melophus lathami</i>	1				W

**Key to notes:**

**Seasons**

AU- Autumn

W- Winter

SP- Spring

SU-Summer

**Migratory Status**

R-Resident

S-Summer

W-Winter

**Conservation Status**

\*- Globally Threatened

\*\* - Globally Near Threatened

√ - Nationally Threatened



Annex II: QUESTIONNAIRE SURVEY TO ACCESS THE STATUS OF BIRDS ALONG  
THE DANG DEUKHURI FOOTH-HILL FOREST AND WEST RAPTI WETLAND

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- 1) Name:
- 2) Address:
- 3) Profession:
- 4) Sex:
- 5) Do you know the bird diversity of Nepal?
- 6) Do you know any bird related research has been carried out in this area before?
- 7) Are aware that Forest of Dand Deukhuri and West Rapti Wetland is one of the important bird areas (IBA) of Nepal?
- 8) What are the positive aspects of birds?
- 9) What are the negative aspects of birds?
- 10) According to your opinion and experience what are threats to birds?
- 11) Have you noticed that any hunting persists in your village?  
If yes for what  
purpose?.....  
.....
- 12) According to your experience which bird's population is decreasing?
- 13) What are the techniques used for fishing in Rapti River?
- 14) Is here practice to keep pet bird?.....if yes which  
birds.....
- 15) Do you think it is necessary to conserve birds?
- 16) Do you feel here is essential of birds and bio diversity conservation awareness  
education?

Annex III: RESPONDENTS OF QUESTIONNAIRE SURVEY TO ASSESS THE  
STATUS OF BIRDS ALONG THE DAND DEUKHURI FOOTHILL FOREST AND  
WEST RAPTI WETLAND

S.N	Respondent Name	Address	Profession	Age, Years
1	Joharman Miya	Lalmatiya,4	Farmer	49
2	Chitra Bahadur ghimire	Gobardiya,2, Banbari	Farmer	42
3	Arjun Ghimire	Sonpur, 8 Sundabari	Farmer	38
4	Purna Prasad Yadav	Satbarita	farmer	
5	Indra Prasad Choudhary	Lalmatiya,6, Maurighat	Forest Officer	37
6	Pun Bahadur Kumal	Lalmatiya	Farmer	54
7	Lal Bahadur Thapa kshetri	Lalmatiya,4	Forest guared	35
8	Satish Gautam	Sonpur,6	Teacher	46
9	Purnima Achrya	Lalmatiya 3, Pakhapani	Vet. Tcch	36
10	Ramnath Chodhary	Lalmatiya, Maurighat	Job	32
11	Moti Adhikari	Lalmatiya,4	Farmer	51
12	Bhagatram Choudhary	Sisahaniya,5	Business	25
13	Sher Bahadur Choudhary	Sonpur,1	business	32
14	Narayan Prasad Belbase	Sonpur,8	Business	27
15	Tulsiram Pokhrel	Sonpur,5	Job	30
16	Subash Choudhary	Lalmatiya, 5	Vet tech	28
17	Deepak Singh	Kusum	Student	19
18	Rajesh choudhary	Satbariya	Farmer	34
19	Dinesh K.C.	Rihar, Satbariya	Farmer	24
20	Kamal Chodhary	Satbariya	Farmer	31